ABSTRACTS IN URGENT CARE

- Taking Temps
- Probiotics + Antibiotics = ?
- Radiography in Kids with Bronchiolitis
- Lead the Way with Hand Sanitizer
- Questioning Positive Viral Tests
- Time to Sit Down

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Check the Temps: A Timely Throwback

***Key points:** Peripheral temperatures (ie, temporal, tympanic, oral, and axillary) are inaccurate and cannot reliably exclude the presence of fever. If absolute certainty regarding febrile status is critical (eg, neonates, immunosuppressed patients), a (gentle) rectal temperature is the preferred method of temperature acquisition in the urgent care setting. For all others, a tympanic temperature reading <37.5°C appears to best exclude true fever with reasonable certainty. Finally, all this comes with the important caveat that recent use of an antipyretic must also be considered when evaluating for fever.*

Citations: Bijur PE, Shah PD, Esses D. Temperature measurement in the adult emergency department: oral, tympanic membrane and temporal artery temperatures versus rectal temperature. *Emerg Med J*. 2016;33(12):843-847.

Niven DJ, Gaudet JE, Laupland KB, et al. Accuracy of peripheral thermometers for estimating temperature: a systematic review and meta-analysis. *Ann Intern Med*. 2015;163(10):768-77.

Coughing, sneezing, sniffling. These sounds likely haunt you for hours after every shift. In fact, chances are you've got many of these very symptoms yourself right now—some days, maybe even more than your patients. As we find ourselves headlong into cold and flu season, upper respiratory infections and related concerns are probably dominating your clinical life.

In the assessment of both adult and pediatric patients with URI symptoms, one of the most important data points in our evaluative algorithms is the presence or absence of fever. So, how do we actually know if the patient in front of us is febrile? Obviously, we check their temperature. But *how*? And does method of measuring matter?

There are a myriad of techniques to measure body temperature—temporally, orally, axillary, tympanically, and dare I say, rectally. The practicality and ease of temperature acquisition varies based on the patient's age and situation. And most patients certainly have a preference, as well. Consider the difference between getting a rectal temperature in a 10-month-old vs a 10-year-old. But are all methods equally accurate?

In my role supervising dozens of urgent care advanced practice providers, I don't often hear much discussion about how temperatures are acquired. However, an accurate temperature is crucial in urgent care, where we have very little objective data and only a short time to evaluate each patient—especially because presence of a fever will often significantly alter our management.

I wanted to begin Abstracts in Urgent Care this month with two "greatest hits" papers from the last decade that probably flew under your radar, as they address this very issue.

In the first paper, a 2015 meta-analysis, the authors compiled the data from 75 studies involving over 8,000 patients. They specifically compared the accuracy of peripheral thermometers to nonperipheral thermometers in identifying temperatures ± 0.5°C from the normal range. For the purposes of this analysis, peripheral thermometers included oral, tympanic, axillary, and tympanic readings. Nonperipheral referred to rectal recordings as well as other more invasive techniques (eg, bladder and esophageal).

The authors found that peripheral temperatures were highly specific (96%) for identifying fevers, but had poor sensitivity (64%). In other words, an elevated peripheral temperature virtually guarantees that the patient is truly febrile, whereas a normal peripheral temperature is highly unreliable in excluding the

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presence of fever. Based on this finding, they concluded that "peripheral thermometers do not have clinically acceptable accuracy and should not be used when accurate measurement of body temperature will influence clinical decisions."

Measuring temperatures in urgent care

While a reliable temperature measurement is a priority, checking a rectal temperature on every patient with a runny nose would be an impractical (and unpopular) way to practice. Which leads to the next logical question: If we must choose between peripheral methods of temperature recording, which should we choose? The second paper addresses exactly this issue.

In this 2016 article, the researchers took nearly 1,000 emergency patients and evaluated the accuracy of oral, temporal, and tympanic temperatures compared with core temperature readings. Similar to the meta-analysis, the investigators found a high specificity and low sensitivity of all peripheral thermometers. Interestingly, oral temperatures were both the most specific and the least sensitive (possibly due to recent PO intake) for the presence fever using a cut-point of 38°C. These authors reached the same conclusion as those of the 2015 meta-analysis: peripheral thermometers are not reliably sensitive enough to be used to exclude the presence of fever.

However, in a clever subanalysis, the authors changed the cut-point for defining a fever to 37.5°C. With this revised definition of fever, they found that the sensitivity of peripheral thermometers improved significantly. The best performing method, using the lower cutoff, was tympanic temperature acquisition with a sensitivity and specificity both >90% for identifying patients with a core temperature >38°C.

And with that, let's get on to this month's review of recent abstracts in UC. ■

Let Them Fight it Out

Key point: Probiotics co-prescribed with antibiotics are a low-risk strategy to mitigate risk of* C difficile *colitis.

Citation: Goldenberg JZ, Mertz D, Johnston BC. Probiotics to prevent *Clostridium difficile* infection in patients receiving antibiotics. *JAMA*. 2018;320(5):499-500.

Antibiotics are the most commonly prescribed class of medications in urgent care. Recent evidence has suggested that many of these prescriptions are unnecessary, and antibiotics have multiple known risks. Most frequent among these adverse reactions is intestinal dysbiosis and diarrhea, including that related to *Clostridium difficile* infection, which can be life-threatening. Probiotics have been increasingly used as a strategy to address this gut dysbiosis. If *C diff* strikes when the antibiotics wipe out too many of the "good guys," maybe we can prevent this by giving the patient back some normal flora, the thinking goes.

These authors from *JAMA* reviewed the clinical evidence for co-prescribing a probiotic with an antibiotic as a means of reducing the risk of *C diff*. In creating this "Clinical Evidence Synopsis," the authors reviewed nearly 40 RCTs which included both adult and pediatric patients. They found that there was "moderate" quality evidence present across these studies in support of this practice. Based on the pooled analysis of the trials, the authors found a number needed-to-treat (NNT) of about 40 probiotic prescriptions required to prevent one case of antibiotic associated *C diff* colitis. Unfortunately, there are literally thousands of nonstandardized probiotic products on the market containing a multitude of strains and concentrations of different "good" microorganisms. So which product, which strains, which dose, and what duration of therapy to recommend remains anybody's guess. ■

Taking the Lead from Our Ped Colleagues on Chest X-Rays

Key point: Pediatric emergency clinicians ordered less than half as many chest x-rays as nonpediatric emergency specialists did for children <2 years of age with bronchiolitis.

Citation: Burstein B, Plint AC, Papenburg J. Use of radiography in patients diagnosed as having acute bronchiolitis in US emergency departments, 2007-2015. *JAMA*. 2018; Oct 16; 320:1598.

When parents bring in an infant with fever, cough, and wheezing, the elephant in the room is generally pneumonia. Because most urgent care centers have x-ray capability, there is often unspoken (and sometimes not so unspoken) pressure from families to just get the chest x-ray "to make sure" the cause of the child's symptoms isn't pneumonia. However, in children <2 years with rhinorrhea and bilateral rhonchi and wheezing, the diagnosis is almost certainly bronchiolitis. In these cases, a chest x-ray usually doesn't help make this diagnosis, but can lead to increased antibiotic and radiation exposure without improving outcomes. For these reasons, the American Academy of Pediatrics has actually made a formal recommendation *against* routine chest x-ray in cases of suspected bronchiolitis.

In this retrospective database analysis, researchers identified that children seen in pediatric EDs and diagnosed with bronchiolitis had chest radiographs ordered 25% of the time vs 53% of the time in nonspecialized EDs with similar rates of admission. This was felt to be attributed to increased familiarity with guidelines and comfort with evaluation of pediatric patients with respiratory complaints among pediatric specialists.

The bottom line is that bronchiolitis is a self-limited lower respiratory tract viral syndrome. While it might make parents and children miserable for a while, the vast majority of otherwise healthy children will recover relatively quickly and uneventfully. Treatment and disposition should be based on the clinical assessment for work of breathing and dehydration rather than radiographic findings. ■

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When It Comes to Kids, Hand Sanitizer Wins

Key point: **Providing hand sanitizer and teaching children to use it effectively reduces the incidence of URIs in the daycare setting.**

Citation: Azor-Martinez E, Yui-Hifume R, Muñoz-Vico FJ, et al. Effectiveness of a hand hygiene program at child care centers: A cluster randomized trial. *Pediatrics*. October 8, 2018 [e-pub ahead of print].

There is no more reliable question to determine whether a child has had sick contacts than simply asking if he or she attends daycare. Children who attend daycare get sick more often, leading to higher rates of antibiotic use and healthcare utilization, which in turn means more illness, clinic visits, and missed work for their parents too.

It doesn't take long working in urgent care before clinicians can identify the well-appearing, febrile child who needs nothing—and whose caregiver needs nothing more than reassurance. But perhaps this is the exact moment where we can provide not only some meaningful teaching for our patient, but a useful service for the good of public health, as well. Hand hygiene isn't necessarily the most compelling topic to discuss. However, as our infectious disease colleagues keep reminding us, it remains the most impactful strategy for preventing the spread of disease. The question is, which type of hygiene? Hand washing has long been considered the gold standard; however, getting a toddler to participate with appropriate vigilance so as to make the practice effective is improbable at best.

This group of researchers from Spain performed a cluster randomized control trial involving 911 children across 24 daycare centers. Each center was randomized to either a handwashing with soap and water intervention, hand sanitizer intervention, or no intervention (control). The authors found that there was a nearly 25% decrease in both URIs and antibiotic prescriptions among the centers using hand sanitizer compared with no intervention. Children attending centers using hand sanitizer had significantly fewer missed days due to respiratory illness compared with children attending centers in the other two groups. ■

Never Trust a Febrile Neonate—Even with a Positive Viral Test

Key point: In infants <60 days of age, a positive viral test (eg, influenza) decreases but does* not *eliminate the possibility of concurrent serious bacterial infection (SBI).

Citation: Mahajan P, Browne LR, Levine DA, et al. Risk of bacterial coinfections in febrile infants 60 days old and younger with documented viral infections. *J Pediatr*. 2018; Dec;203:86-91.

Young infants are notoriously difficult to evaluate clinically. While the majority will end up having a viral infection as the sole etiology of a fever, a nontrivial proportion will have invasive bacterial diseases. Rapid viral assays are among the most common tests available in urgent care centers. These viral assays tend to have high specificities and are valuable when the aim is to confirm infections such as influenza or respiratory syncytial virus.

When parents bring in a <60-day infant with fever, therefore, the natural temptation can be to run a viral assay with the hopes that a positive test will obviate the need for ED referral and more invasive testing. According to this research, we must resist this temptation.

In this observational study, investigators prospectively followed 1,200 infants <60 days old with fever and positive viral tests and 1,745 with negative viral tests. They found that the rate of SBI was 3.7% in the group with positive viral studies vs 12.7% in the group with negative viral studies. As expected, a positive viral study does decrease the likelihood of SBI somewhat, but not to a safely negligible level. Based on these findings, running viral assays on such patients does not seem to be of value in the urgent care setting because it will not change immediate management, and should not deter urgent care clinicians from referring these potentially ill patients to the ED for further evaluation. ■

Practice of Urgent Care: Have a Seat

Key point: Patients perceive that providers who sit down during interactions spend significantly more time with them.

Citations: Young RA, Burge SK, Kumar KA, et al. A time-motion study of primary care physicians' work in the electronic health record era. *Fam Med*. 2018;50(2):91-99.
Johnson RL, Sadosty AT, Weaver AL, Goyal DG. To sit or not to sit? *Ann Emerg Med*. 2008;51(2):188-193.

Time flies when we're having fun, but drags when we are stuck in line at the bank. Abundant human psychology research has demonstrated that our perception of the passage of time is highly variable based on a number of external factors.

As urgent care clinicians, we often face competing pressures related to delivering quick and efficient care while simultaneously providing excellent patient experience. Both patients and clinicians highly value time spent together; yet, ironically, with each passing year, the amount of time healthcare providers spend with their patients decreases.

Because of the pressures in urgent care to see many patients quickly without causing any of them to feel shortchanged for

our time and attention, a strategy which creates the sense of time with the provider expanding would be something of a Holy Grail. And it turns out it's been right under our noses all along: It's that stool sitting in corner.

Perhaps some of you already practice the habit of sitting when speaking to every patient, but there is certainly an ever-present temptation, especially when in a hurry, to remain standing. However, if our goal is for our patients to feel we are present and that they have more of our time than we actually have to give them, it's worthwhile to make sitting a standard practice with each patient.

In this study from 2008, researchers surveyed 224 ED patients who were seen by various types of providers (APPs, residents, and attending physicians). Providers were assigned to a standing or sitting position for the majority of the interaction. The providers spent an average of 8.6 minutes with patients. There was no statistical difference between the amount of time the providers in each group actually spent with the patients.

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Remarkably, the patients who were seen by standing providers mistakenly felt that the provider spent significantly less time with them, whereas patients who were seen by a provider who sat misperceived that the provider actually spent more time interacting with them. The relative difference was 1.9 minutes in perceived time between the two positions. In other words, patients felt that providers who sat spent an extra 22% more time with them relative to providers who stood.

So, while sitting doesn't really give us more physical time with our patients, it does make them feel like they are getting more of it. And, in urgent care, that may actually be a more desirable solution. ■